



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

September 25, 2008

REPLY TO THE ATTENTION OF:

Mr. Jerry C. Winslow  
Principal Environmental Engineer  
Xcel Energy  
414 Nicollet Mall (Ren. Sq. 8)  
Minneapolis, Minnesota 55401

SR-6J

EPA Region 5 Records Ctr.



313787

RE: Final revisions and comments to the Revised Feasibility Study  
Ashland/NSP Lakefront Superfund Site

Dear Mr. Winslow:

In accordance with the Administrative Order on Consent (AOC), CERCLA Docket No. V-W-04-C-764, Section X, Subparagraph 21(c), the United States Environmental Protection Agency (EPA) is modifying the Revised Feasibility Study Report (FS) submission to cure certain deficiencies. By letter dated February 15, 2008, EPA provided Northern States Power Company (NSPW), (d.b.a. Xcel Energy) a notice of deficiency regarding the FS, giving NSPW 30 days from March 3<sup>rd</sup> to modify the FS based on EPA's comments. EPA, in consultation with WDNR, has reviewed NSPW's revised FS. Since EPA has already provided a notice of deficiency on the FS, EPA invokes its right to modify the FS pursuant to Subparagraph 21(c). The attached FS documents provide final language changes and also include comments that need to be addressed in the final FS for the Ashland/NSP Lakefront Superfund Site.

In addition, EPA is providing comments (see Attachment) that need to be addressed in the final FS. All supporting FS documents (Tables, Appendices, etc.) need to be revised based on the final FS. Please submit the final FS document by October 24, 2008.

If you have any questions, please contact me at (312) 886-1999.

Sincerely,

Scott K. Hansen  
Remedial Project Manager

cc: Dave Trainor, Newfields  
Jamie Dunn, WDNR  
Omprakash Patel, Weston Solutions, Inc.  
Henry Nehls-Lowe, DHFS  
Ervin Soulier, Bad River Band of the Lake Superior Chippewa  
Melonee Montano, Red Cliffe Band of the Lake Superior Chippewa

**Some of these comments may have already been incorporated into the redline/strikeout version that was sent on September 25, 2008.**

### **General Comments**

1. The SED-6 Alternative needs to be incorporated into the final FS.
2. The SITE Program Report needs to be incorporated into the final FS.
3. It appears that MNR is a component of all the remedies, but the report did not include any discussions of what natural processes are occurring at the site and are expected to occur in the future. The role of MNR (or not) in reaching RAOs and cleanup levels must be discussed.
4. One of the threshold criteria in the assessment of the options is compliance with Applicable or Relevant and Appropriate Requirements (ARARs). As put forth in the feasibility study by NSPW, a confined disposal facility in Lake Superior will have to meet the stated ARAR's. There are potential difficulties NSPW will encounter in trying to obtain the appropriate authorization of a CDF under the Public Trust Doctrine and other applicable regulations. Recent proposals to construct new, or expand existing CDFs in Wisconsin have been unsuccessful due to the inability to engineer a facility which can be assured to be suitable and stable for the long term and to withstand the public opposition to the facility. In addition many proposed CDFs fail to take into account the actual costs associated with engineering, constructing and maintaining the facility. There are also concerns that the proposal calls for the CDF to accept on land solid waste which will create a landfill in the waters of the state. Certainly the public has reinforced the alternative of contaminant removal from the bed of Lake Superior. While it is certainly NSPW's prerogative to continue to evaluate the feasibility of a CDF as part of the Superfund process, the ARARs as described in previous discussions and correspondence, as well as local acceptability will likely impact the viability of this alternative.
5. Appendix H should be removed from the document. A list of capping projects is not needed.

6. The wastewater component of the site wide integrated remedies seems underestimated. A site wide wastewater component needs to be explored. Specifically, the economy of a one, site specific wastewater treatment plant, which is sized to handle the excavation, sediment and groundwater components of the remedial effort. Although some estimates of wastewater production are given, no comprehensive wastewater option is explored.

### **Specific Comments**

1. **Executive Summary, Page ES-6**

Under the narrative discussing the 5 alternatives retained for review the first 4 paragraphs in this discussion is very confusing. The narrative needs to be cut down to specific actions and outcomes.

2. **Summary of RI findings, Page 3-1, Footnote 3**

The footnote states: *The term "tar" is used generically in this document to refer to a suite of VOC and PAH compounds the sources of which are the former MGP and other lakefront industrial operations including wood treatment activities.* The portion that states "including wood treatment activities" should be deleted. The **potential** that wood treatment may have taken place is discussed in the narrative and inclusion, in this way, in the footnote overstates that potential.

3. **Page 3-2, Footnote 6**

*"LSDP and its predecessor records indicate that the MGP produced water gas exclusively during its tenure. An exception is for the year 1917, when records indicate that less than 15% of the total gas production was recorded as "coal gas." Brown's Directories for the same period (1913 – 1916) records that the Ashland MGP "will construct coal gas plant of 14,000,000 cf (14,000 mcf) capacity per annum." There is no further mention of this facility in Brown's beginning in 1917 (A history of Ashland MGP Tar Generation Records is included in Appendix D of the March 1999 Ashland/NSP Lakefront Feasibility Study report.)"*

This issue has been commented on in past documents to NSPW that this statement and others regarding the potential MGP waste output from this facility needs to be

based on all historic documentation. NSPW has copies of the Wisconsin Railroad Commission records from a number of years of MGP operation. Those records also support some coal gas production and run counter to the report (A history of Ashland MGP Tar Generation Records is included in Appendix D of the March 1999 Ashland/NSP Lakefront Feasibility Study report). As such, the tar generation report should be noted in this document and the footnote narrative needs to include the more competent Railroad Commission information.

**4. Page 3-3**

NSP was named a Responsible Party (RP) for the manufactured gas plant wastes at the site by the WDNR not a PRP as stated in the narrative. Also the City of Ashland and Wisconsin Central Railroad were notified as responsible parties for solid wastes disposed of on their properties. The narrative should be changed to reflect that.

**5. 3.1.3 - Nature and Extent of Contamination, Page 3-5**

The narrative states "The remaining sources of contamination at the Site consist of discrete DNAPL zones derived from the tars that within each of the following locations." The source(s) of contamination at the site is/was the MGP operating and potential other sources. The narrative should re-word the sentence to state that "remaining hotspots of contamination at the Site consist of discrete DNAPL zones derived from the tars that within each of the following locations".

**6. Offshore Sediments, Page 3-7**

The narrative states "a separate NAPL area is found at depths up to 10 feet between the former WWTP and the boat launch". This is not true. This area is covered by a deeper layer of wood waste but is at the same basic elevation and sediment layer as other areas of impacted sediments.

**7. 3.1.3 - Contaminant Fate and Transport, Page 3-9**

The first paragraph should be changed to state:

The source of the contamination at the Site was caused primarily by the MGP that began in the 1880's and continued until the mid 20<sup>th</sup> century although other minor sources may have also impacted the area. Although contaminant sources were no longer active after that time, continued filling activities may have further dispersed these contaminants.

Third paragraph first sentence should be changed to state:

The tar has migrated from the MGP area through the ravine and later through the clay tile pipe system and open sewer into the bay and contaminated the bay impacting the sediments.

The fourth paragraph should state:

Waste tars released during MGP operations migrated through the ravine fill and the buried clay tile to the base of the former ravine. The source of the NAPL at the seep was the MGP. The tile was likely part of a sewer system installed during the early operation of the MGP most likely in response to a 1902 City of Ashland sewer ordinance requiring the underground discharge of MGP wastes. However, the NAPL mass found south of St. Claire Street indicates this material was released at least in part and not entirely captured by this pipe system. Following backfilling of the ravine, releases of NAPL likely continued through the clay tile pipe. This material migrated to the downstream end of the tile, likely later connected to a second tile system identified during the 2005 RI. This tile paralleled the bluff face and was traced to the location of an upstream inlet of a former open sewer identified at the west side of Kreher Park. Once the open sewer was abandoned, NAPL then discharged through breeches in the pipe network, such as at the seep.

The last 2 paragraphs in this section should be changed to state:

In contrast, the soil data from Kreher Park show the opposite relationship regarding PAHs, with an order of magnitude increase in PAH levels across the majority of the park compared to the upper bluff/filled ravine. The PAHs are less mobile and less soluble compared to the VOCs, degrading more slowly. This chemical behavior combined with the physical characteristics in the fill material have created conditions for the PAHs to remain present and at similar levels in the fill since they were first released. The highest levels are most pronounced in the area of the former coal tar dump. Another potential source is the off-loading of fuel feedstocks or other raw materials to support the MGP and other lakefront industrial activity.

Contaminants in the affected sediments likely originated from the MGP operation with the potential addition from other minor sources. One transport mechanism was the ravine/clay tile pipe and open sewer when it was functional.

#### **8. 3.1.4 - Conceptual Site Model**

##### **3.1.4.1 - Historical Setting Summary**

The first 2 paragraphs in this section should be changed to state:

The MGP was constructed on the east flank of the former ravine in the mid 1880s. Contemporaneously, lumber operations at the lakefront were active with the Pope, Barber and Sutherland mills. The land on which these mills operated were reclaimed lakebed constructed from logs and other wood materials rafted from the Apostle islands and the Arrowhead Region of northern Minnesota. The following is based mainly on Sanborn Fire Insurance Maps. By 1901 the ravine was filled with MGP waste and locally available materials to the level of St. Claire Street, although it was still open to the north. Filling continued at that time at the lakefront; much of the western portion of present day Kreher Park was filled and the open sewer was present. The John Schroeder Lumber Company had begun its operations by this date. During this time the sewer network linking the open sewer to the clay tile in the ravine was installed. This timeframe corresponds to the 1902 City of Ashland ordinance forbidding the direct discharge to Chequamegon Bay of manufactured gas plant wastes except via an underground conveyance. Eight years later, by 1909, much of the ravine had been filled, although the bluff face was several feet south of its current location. Later records from 1923 show an expansion of the gas plant with the addition of gas holders and tanks, and expansion of the sawmill and appurtenances at the Schroeder facility. By 1946, Schroeder's facilities remained, but active operations had ceased in the 1930s. The open sewer was still visible, and the MGP reached its maximum output. By 1951, some of the MGP facilities remained (one holder), although it was no longer operating. A large horizontal tank (propane) was present on the MGP plant site. At the lakefront, the area of the open sewer had been filled; and the Schroeder facilities had been removed. The shoreline had been altered/filled in the area of the former sawmill, and the coal tar dump area was shown on historical maps. No

maps or historical documents indicate any wood treatment structures at the Schroder saw mill property.

9. **3.1.4.2 - Contaminant Sources and Disposition**

This section should be changed to state:

During the life of the MGP, releases of NAPL to the environment occurred. Records indicate that a small quantity of this tar material was utilized for fuel or sold, but much was inadvertently lost. The likely routes for discharge of tar is direct discharge of tar into the filled ravine prior to installation of the 12-inch clay tile, and continuing releases to the clay tile pipe network/open sewer when it was functional. Some of the tar material was entrained in plant wastewater that was discharged to the ravine/clay tile. Other tars and NAPL generated as co-product in the gas manufacturing process (such as at holders or releases from fuel tanks) discharged directly to the environment. This material migrated to the base of the ravine, Kreher Park and Chequamegon Bay following complete backfilling of the ravine early in the life of the MGP. Other material migrated to the Copper Falls aquifer. Wastewater and other incidental NAPL discharged to the sewer were conveyed via the clay pipe network to the open sewer and then to the bay inlet.

In 1900, Schroeder Lumber began operation at the lakefront. It performed active sawmilling and other lumber operations for more than three decades. The County acquired the lakefront property in 1941; the City then acquired the property from the County in 1942.

Additionally, other industrial sources (such as rail car offloading of feedstocks and raw materials for MGP and other industrial activities) may have caused or contributed to high levels of PAH-rich contaminants at the Lakefront.

In 1947, continued releases of NAPL from the MGP were eliminated with cessation of its operations. However, remnants of NAPL in the ravine continued to migrate via the clay tile to the seep area, discharging to the surface during high flow (storms, etc.) conditions. Since this time, NAPL and the associated groundwater plume in the Copper Falls aquifer

continued to migrate north. However, data from these investigations confirm that a potential stagnation or convergence zone in the Copper Falls aquifer in the area of MW-2B(NET) has potentially limited further movement of the plume to the north (since 2000), the NAPL removal system has removed a fraction (more than 9,700 gallons of product) of the NAPL and dissolved plume mass.

In 1952, the City of Ashland began construction of the WWTP. During the construction, the remnants of waste from the MGP (and potentially other sources) at the Lakefront were likely disturbed to allow for installation of the new sewer network. The clay core wall was installed to prevent groundwater infiltration into basement areas, and the pipe/sewer distribution network to the new WWTP was constructed. The latter further damaged the earlier pipe network connected to the former open sewer. Other construction actions that occurred after this time may have further affected contaminant disposition. Since operations at the WWTP were relocated in 1992, no significant contaminant contribution action has occurred.

The residual contamination remaining in the ravine continued to discharge to Kreher Park via the buried tile and fill material. Surface breakthrough was observed following rainfall events. The tile investigation in 2001 crushed and removed much of the tile. The seep remediation in 2001 removed much of the surface contamination at the seep, replaced it with clean fill, and installed EW-4 to capture residual contamination migrating through the seep into the mouth of the ravine. This pathway has been subsequently removed and further migration through the ravine controlled.

The contamination at Kreher Park continues to migrate to the lake sediments from the primary NAPL source areas. The contaminants in the fill appear to be in dynamic equilibrium with the sediments. NAPL sources in sediments near the shoreline appear to impact near shore upland areas, as shown by historical monitoring of product levels near the north side of the WWTP (TW-11) and shoreline water quality (PDB) data. These conditions are also demonstrated by vertical gradient measurements



between piezometers screened at the base of the fill and water table wells at the shoreline.

**10. 3.1.4.3 – Summary**

The above mentioned CSM corresponds with the historical findings and data developed since investigations began at the Site. The zones of NAPL in the filled ravine, Kreher Park, Chequamegon Bay and Copper Falls aquifers as well as at the seep occurred through the transport mechanisms described above. Contaminant loading to sediments potentially occurred from the day the MGP began operation initially through direct discharge in ravine and later through clay tile, bluff pipe and open sewer networks. Following filling and abandonment of the sewer system this pathway was eliminated. However, the contaminant loading in the sediments continued through groundwater/NAPL discharge into the lake. Later discharge of residual potential contamination at Kreher Park by the City via culverts and construction activities occurred prior to and after WWTP construction. The distribution of contaminants in sediments is only explained as multiple discharge points. However, the primary source for the sediment contamination is likely the former MGP. Additionally, the high levels of PAHs in soil at Kreher Park compared to the upper bluff suggest the likelihood of a source at the Lakefront and may not exclusively be caused by MGP waste tars. These other potential sources include spills during rail car off loading of fuel feedstocks and raw materials to support industrial activity, including the former MGP facility and former lumber operations at the lake front.

**11. Pages 3-13 and 3-14**

This states that there are seven (7) exposure human health pathways presenting risks, yet later on Page 3-15, it is stated that risks to adult swimmers and waders from surface water and to construction workers from surface soil are acceptable. This needs to be clarified.

**12. 3.3 - Calculation of Areal Extent and Volume of Contaminated Media**

The first sentence of paragraph 2 should state:

Kreher Park consists of a flat terrace of lakebed fill adjacent to the current Chequamegon Bay shoreline.

### 13. 4.0 - Results of SITE Program Demo/Treatability Studies

#### SITE Program Demo

##### Table 4-1

If the intent of table 4-1 is to delineate the increased free product recovery as a response to the SITE program ISCO injection a graph would work better.

#### General Bench Scale Testing Comments

In the Multiphase Flow and Consolidation Testing, much of the wood waste layer is made up of large wood pieces as large as timbers. This material would be very difficult to consolidate yet the conclusions are “Under the CDF remedial scenario, there would be relatively rapid consolidation of the wood layer under the CDF”. Other conclusions are then based on this “rapid consolidation”. This needs to be explained further.

### 14. SOILS

#### 6.5.8 Summary

The narrative states:

*Although removal of all wood waste and fill soil from Kreher Park may be acceptable to the Agency, it may not be acceptable to the community if it results in the loss of future use for the park (i.e. restoration as shallow lakebed or wetland).*

In support of the City of Ashland’s Lakefront Development Plan, the Agency has consistently stated that the current footprint of Kreher Park can remain and has never pursued complete removal to the historic lakebed. As such, this sentence should be deleted.

### SEDIMENTS

#### Containment Structures

Containment structures (sheet piling) will be required around the contaminated sediment area. A portion of this containment will be also part of the Kreher Park containment. Due to the multi-year remedial schedule the structures will be built to withstand ice and storm events. These structures and associated costs should be similar for all active alternatives.

**15. 8.3.2 Alternative SED-2: Sediment Containment within a Confined Disposal Facility**

As stated by the State on the matter of the construction of a confined disposal facility:

Confined Disposal Facility (CDF): Under the National Contingency Plan, 40 C.F. R. 300.430(e), the FS must present a detailed analysis of the alternatives that represent viable approaches to remedial action. The analysis of alternatives must consider nine evaluation criteria at 40 C.F.R. 300.430(e)(9)(iii). In selecting a remedy, EPA must first consider the threshold criteria: overall protection of human health and the environment, and compliance with Applicable or Relevant and Appropriate Requirements (ARARs), 40 C.F.R. 300.430(f)(1)(i)(A). CERCLA Section 121 requires selection of a remedial action that is protective of human health and the environment. EPA's approach to determining protectiveness involves risk assessment, considering both ARARs and to-be-considered materials (TBCs). There is not enough detail in the draft FS to determine if a CDF is a protective remedial alternative and complies with ARARs at the Site. As put forth in the FS by NSPW, a CDF in Lake Superior will have to be protective and meet the stated ARARs. The NR 500 series of the Wisconsin Administrative Code is an ARAR for this alternative because a CDF which contains dredged material and solid waste is a solid waste disposal facility. Landfill location, performance, design, and construction criteria will have to be met along with all other applicable provisions of the NR 500 series Administrative Code. This is a lack of detail in the draft FS on how a CDF meets these performance, design, and location-specific ARARs.

In addition to the threshold criteria requirements, EPA must consider the primary balancing criteria and modifying criteria in 40 C.F.R. 300.430(1)(i)(A) and (B). The primary balancing criteria include long-term effectiveness and permanence, implementability, and cost, and the modifying criteria includes the State and community acceptance. The FS does not provide enough detail to evaluate the CDF alternative under these criteria, and serious issues have been raised as to whether a CDF is a viable alternative. Wisconsin Department of Natural Resources (WDNR)

has continued to outline the potential difficulties NSPW will encounter in trying to obtain the appropriate authorization of a CDF. The legal authority to create a CDF on the lakebed raises questions of implementation as well as State and community acceptance. The mechanisms to authorize a CDF appear to be a lakebed grant from the Wisconsin Legislature, a "bulkhead line" under Section 30.11, Wisconsin Statutes, by the City of Ashland, or a submerged lands lease to the City from the Board of Commissioners of Public Lands for the purposes specified in Section 24.39, Wisconsin Statutes. These mechanisms require a finding that the proposed fill is in the "public interest" or enhances a public trust purpose, and would require the cooperation of the City of Ashland. Until a CDF is authorized, this alternative may not be viable, and the FS does not present a plan to obtain such authorization. In addition, recent proposals to construct new, or expand existing CDFs in Wisconsin have been unsuccessful due to the inability to engineer a facility which can be assured to be suitable and stable for the long term and to withstand the public opposition to the facility. Many proposed CDFs fail to take into account the actual costs associated with engineering, constructing and maintaining the facility. There are also concerns that the proposal calls for the CDF to accept on land solid waste which will create a landfill in the waters of the state.

While NSPW may evaluate the feasibility of a CDF as part of the FS, it is unclear whether this option is viable given the remedy selection criteria at 40 C.F.R. Part 300.430(f). The protectiveness of the remedy and compliance with ARARs, as described in the previous discussion and correspondence, are threshold criteria, and the long-term effectiveness and permanence, mobility, implementability, and cost are balancing criteria, and State and community acceptance are modifying criteria, all of which will impact the viability of a CDF. The FS should address all of the criteria in greater detail in order for EPA to properly evaluate the CDF alternative.

NSPW has outlined a process they feel might move the CDF proposal through the regulatory framework the State disagrees with their process and assumption. That section should be removed from the FS. The fact

that it would take court action, according to NSPW, dragging this out for a number of years and that the other criteria of long-term effectiveness and permanence, implementability, and cost, as well as the modifying criteria of State and community acceptance will likely impact the viability of this alternative.

#### **16. 8.3.2.5 Implementation of Remedy**

##### Wetland Mitigation

The narrative states:

*Interaction with WDNR would be needed to identify appropriate mitigation/restoration projects to compensate for permanent loss of shallow water lake bed. Appropriate projects might include wetlands/river restoration, granting access across NSPW property adjacent to rivers or conveyance of land that has relevant environmental value. For purposes of this FS Report evaluation we have included \$1.5 million for compensatory restoration*

As stated in our comments to the first draft, there is no legal mechanism or basis for the replacement of lakebed with wetland/river restoration. This has been removed in the redline/strikeout version.

#### **17. 8.3.3 Alternative SED-3: Subaqueous Capping**

The general administrative comments regarding the CDF (above) also apply to capping. Further, ice scour in this area can be extensive greatly limiting the long-term effectiveness of a cap.

#### **18. 8.3.5 Alternative SED-5 – Dry Excavation**

A dry dredge/wet dredge alternative needs to be included. Dry dredging should include area where NAPL exists with wet dredge in the rest of the area.

#### **19. Table 8-8**

The Table - Evaluation of Long-term Effectiveness and Permanence for Potential Remedial Alternatives for Sediment, over states the “Adequacy and Reliability of Controls”, or permanency of options SED-2 and SED-3. If a CDF is constructed on the lakebed it would be through a lakebed lease granted by the Legislature. A lakebed lease can only be entered into with a local unit of government (the City of Ashland, or Ashland County) and can only be granted for 50 years. Fifty years or

two and one-half generations may not be considered permanent. It is difficult to see into the future and speculate that a lakebed grant will be re-granted for either SED-2 or SED-3. This future speculation makes it difficult to determine the permanence of this option. The technologies involved in SED-2 and SED-3 may have been used before at other sites. However, these technologies have never been used on sites with free product. Because these technologies have never been used at free product sites the permanence of the technology may be overstated both technically and at an administrative level.

This table is meant to Evaluate the Long-term Effectiveness and Permanence for Potential Remedial Alternatives yet no evaluation was performed on the effectiveness or permanence of the CDF or capping alternative. Between the waste conditions (free product) and the local conditions (rising and falling lake levels, ice scour, and local politics) the permanence is questionable for both. Table 8-8 and all applicable narrative needs to be change to discuss and conclude that both the capping and CDF alternatives rank low.

There seems to be a large cost difference between dry and wet dredging. The items used for costing out the 2 alternatives are different making comparisons difficult. Under wet dredging the cost of wastewater handling, treatment and disposal due to re-suspension seem to be underestimated. If areas of the site containing free product were wet dredged the whole enclosed area of water would have to be managed to calculated surface water quality standards prior to opening the enclosures. The method used for the handling/treatment is not discussed in the FS. In dry dredging the re-suspension issue and associated wastewater treatment at the end of the dredge project is not as extreme and should show some economy. That expected economy is not reflected in the cost estimates.

20. Page 8-28

Define what the backfill and cap materials will be; it is usually clean sand, not clean "sediment".

21. Page 8-40

Evaluations of short-term impacts belong under the short-term effectiveness criteria, not under the first NCP criterion. What should be included here however,

is the expected final surface sediment PAH concentrations after completion; this is the metric (i.e. magnitude of residual risk) that defines risk and protectiveness.

## **22. Figures**

Fig 1-3 Former MGP Features

The 12" clay tile pipe should be added to the drawing. It operated as the wastewater discharge feature for the MGP and therefore is a feature.

Sediment Figures

A figure needs to be added that reflects the location of NAPL in the bay. This can be accomplished by reviewing sediment sample field notes and results for sheen being present.

A figure needs to be added that reflects the 9.5 ppm RAO. Cross sections should also be provided.

## **23. Appendix B**

Comments to the Bench Scale Studies.

General Comments

- i) For the treatability study, only one sediment core was tested. This is probably an insufficient sampling regimen considering the Site's non-homogeneity. One sample is not a statistically valid regimen for accurately determining sediment behavior. Therefore, the study results may not represent all sediment conditions.
- ii) The sample was sifted to remove material greater than 10 millimeters. This process requires substantial sample disturbance; sampling results are likely to have been strongly influenced by sample preparation. Additionally, there is no discussion of how the sample was reconstituted after sifting to approximate field conditions, or if field condition replication was even attempted.
- iii) The sampling location was not provided. For dredging and capping options, at minimum, the top four feet of material will be removed from the lake bed; therefore, the sample should have been taken from more than four feet below the sediment surface. If the sample was taken from the top four feet of the sediments, the sample will not reflect the material to remain after the project.

### Multiphase Flow and Consolidation Testing

The testing attempted to predict the:

- Compressibility of the sediments;
- Permeability of the sediments;
- Mobilization of NAPLs;
- Gas bubble movement within the sediments; and
- *Amount of fluid produced during compaction.*

These results were then used as inputs to the DELCON model in an attempt to predict the behavior of gas, fluid, and NAPL in the underlying sediments during capping or CDF options.

The model predicts that there would be rapid consolidation of the wood layer under the CDF. This test was completed using only the fine (small) wood waste material. Much of the site contains larger wood waste (much larger) such as boards and timbers which will impair any attempt at compaction increasing the void ratio this allowing gas and liquid (including NAPL) movement much more than predicted in the model.

### Cap Flux and Cap Flux Extended Duration Column

It is clear from the results of these tests that PAHs (and potentially NAPL) will migrate upwards through this type of cap. It also shows that significant methane production and migration occurs. The Multiphase Flow and Consolidation Testing Report conclude that "After consolidation ... it is expected that production of methane and carbon dioxide will de-saturate the largest pores and create pathways for gas releases". Then it states that no NAPL displacement would be expected. These are inconsistent conclusions.

### Bench Scale Air Emissions Treatability Study

As mentioned in previous discussions, The Air Emissions Study is applicable in the design phase. Short term air impacts from any remedial actions taken in areas where NAPLs exist on this site pose a potential risk. These risks need to be understood, designed into and managed during the remedial action taken. In the feasibility study process these potential impacts are known and the decision matrix will be weighed accordingly.



## **Comments to NSPW Responses to EPA 02/15/08 Comments - Draft Feasibility Study (FS) Report**

These comments will follow the format of the NSPW Responses.

### **General Comment 2**

The FS should include a section that, “address expected flows from a combination of actions, evaluating technologies, costs, and discharge points”. The FS does contain some wastewater production estimates; however, a plan for site-wide wastewater treatment was not addressed.

### **General Comment 3**

#### **CDF**

As stated at the March 3, 2008 meeting, the WDNR feels that a CDF is not administratively possible to construct at the site.

### **Specific Comment 20**

NSPW states, “Further, historical documents support wood preservation associated with the former lumber operations. If the evidence of wood preservation at Kreher Park is ignored, weathering may explain higher PAH concentrations...” What are these “historical documents? Currently the WDNR has historic Sanborn maps, newspaper articles and other normally used historical documents that do not lead one to the conclusion that wood treatment took place. WDNR has affidavits and interviews that contradict but do allude to the potential that wood treatment may have taken place. If NSPW has “historic” documents that directly support wood treatment activities taking place at Kreher Park, please provide them.

### **Specific Comment 59**

NSPW states, “Landfill locational criteria and performance standards per NR 504.04 (1) state that “as part of the feasibility report required under ch. NR 512 an applicant shall demonstrate to the department that the proposed landfill will comply with all of the locational criteria and performance standards of this section unless an exemption is granted.” NR 504.04(2) allows for an exemption to location criteria described in NR 504.04(3)”.

NR 504.04(2) allows for exemptions to be granted for all of the locational criteria except NR 504.03(3), (c) Within a floodplain. The flood plan elevation for the Kreher Park area

is set at 605 msl (Community Plot 550005 002 B), page 2 of 3, dated September 30, 2008. A significant portion of Kreher Park surface is below that elevation thus within the floodplain.

Specific Comment 63

NSPW states, "NSPW understands that treated water can be discharged on site in accordance with the WPDES General Permit used in Wisconsin for groundwater remediation projects." It is correct that a WPDES permit will not be required under the Superfund process. *The determination of if the discharge would fall under the intent of a general or specific permit would be made after plans are submitted.* This would also apply in the implementation of a PRB wall.

Comments specific to a CDF or capping have been addressed earlier in this document.